

## WEST Search History

DATE: Friday, September 27, 2002

<u>Set Name</u> side by side	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u> result set
<i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=AND</i>			
L4	L3 and (tea or mushroom or algae or cereal)	16	L4
L3	L1 and cancer\$	85	L3
L2	L1 and apoptosis	24	L2
L1	glycerolipid	196	L1

END OF SEARCH HISTORY

ACCESSION NUMBER: 1996:377383 CAPLUS  
DOCUMENT NUMBER: 125:83071  
TITLE: Relationship between Arachidonate-Phospholipid  
Remodeling and **Apoptosis**  
AUTHOR(S): Surette, Marc E.; Winkler, James D.; Fonteh, Alfred  
N.; Chilton, Floyd H.  
CORPORATE SOURCE: Section on Pulmonary and Critical Care Medicine,  
Bowman Gray School of Medicine, Winston-Salem, NC,  
27157-1054, USA  
SOURCE: Biochemistry (1996), 35(28), 9187-9196  
CODEN: BICHAW; ISSN: 0006-2960  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Our previous studies reveal that three structurally distinct inhibitors  
of

the enzyme CoA-independent transacylase, including the antiproliferative  
alkyllysophospholipid ET-18-O-CH<sub>3</sub>, induce programmed cell death (**apoptosis**) in the promyelocytic cell line HL-60. The objective of  
the current study was to better elucidate the mechanism responsible for  
**apoptosis**. CoA-IT is an enzyme believed to be responsible for the  
remodeling of long chain polyunsatd. fatty acids like arachidonate  
between

the phospholipids of mammalian cells. The chronic (24-48 h) treatment of  
HL-60 cells with all three CoA-IT inhibitors resulted in the inhibition  
of

the remodeling of labeled arachidonate from choline- into  
ethanolamine-contg. phospholipid mol. species. GC-MS anal. of the fatty  
acids in phospholipids revealed that CoA-IT inhibitor treatment induced a  
marked loss of arachidonate-contg. phosphatidylethanolamine and an  
increase in arachidonate-contg. phosphatidylcholine. This redistribution  
was specific to arachidonate since the mass distribution of linoleic acid  
in **glycerolipids** was not affected. In spite of the dramatic  
redistribution of arachidonate, the total cellular arachidonate content  
was not altered nor was the relative distribution of total phospholipid  
classes. The increase of arachidonate in phosphatidylcholine was  
specifically due to an increase in 1-acyl-2-arachidonoyl-sn-glycero-3-  
phosphocholine species, whereas the loss of arachidonate in PE was from  
both 1-acyl- and 1-alk-1-enyl-2-arachidonoyl-sn-glycero-3-  
phosphoethanolamine species. The incubation of cells with exogenous  
arachidonic acid or ethanolamine did not reverse the inhibition of  
proliferation induced by CoA-IT inhibitor treatment. Incubation with  
CoA-IT inhibitors also induced the characteristic cytoplasmic and nuclear  
changes assocd. with **apoptosis** as assessed by transmission  
electron microscopy and DNA fragmentation as detd. by flow cytometry.  
Taken together, these data show that **apoptosis** in HL-60 cells,  
induced by blocking arachidonate-phospholipid remodeling, is correlated  
with a redistribution of arachidonate in membrane phospholipids and  
suggest that such alterations represent a signal which controls the  
capacity of cells to proliferate.

L7 ANSWER 6 OF 8 MEDLINE  
 ACCESSION NUMBER: 97119530 MEDLINE  
 DOCUMENT NUMBER: 97119530 PubMed ID: 8960353  
 TITLE: "Cross talk" between the bioactive **glycerolipids**  
 and sphingolipids in signal transduction.  
 AUTHOR: Brindley D N; Abousalham A; Kikuchi Y; Wang C N; Waggoner  
 D  
 W  
 CORPORATE SOURCE: Signal Transduction Laboratories, Faculty of Medicine,  
 University of Alberta, Edmonton, Canada.  
 SOURCE: BIOCHEMISTRY AND CELL BIOLOGY, (1996) 74 (4) 469-76. Ref:  
 61  
 Journal code: 8606068. ISSN: 0829-8211.  
 PUB. COUNTRY: Canada  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 General Review; (REVIEW)  
 (REVIEW, TUTORIAL)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 199703  
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 AB Hydrolysis of phosphatidylcholine via receptor-mediated stimulation of  
 phospholipase D produces phosphatidate that can be converted to  
 lysophosphatidate and diacylglycerol. Diacylglycerol is an activator of  
 protein kinase C, whereas phosphatidate and lysophosphatidate stimulate  
 tyrosine kinases and activate the Ras-Raf-mitogen-activated protein  
 kinase  
 pathway. These three lipids can stimulate cell division. Conversely,  
 activation of sphingomyelinase by agonists (e.g., tumor necrosis  
 factor-alpha) causes ceramide production that inhibits cell division and  
 produces **apoptosis**. If ceramides are metabolized to sphingosine  
 and sphingosine 1-phosphate, then these lipids can stimulate  
 phospholipase  
 D and are also mitogenic. By contrast, ceramides inhibit the activation  
 of  
 phospholipase D by decreasing its interaction with the G-proteins, ARF  
 and  
 Rho, which are necessary for its activation. In whole cells, ceramides  
 also stimulate the degradation of phosphatidate, lysophosphatidate,  
 ceramide 1-phosphate, and sphingosine 1-phosphate through a  
 multifunctional phosphohydrolase (the Mg(2+)-independent phosphatidate  
 phosphohydrolase), whereas sphingosine inhibits phosphatidate  
 phosphohydrolase. Tumor necrosis factor-alpha causes insulin resistance,  
 which may be partly explained by ceramide production. Cell-permeable  
 ceramides decrease insulin-stimulated glucose uptake in 3T3-L1 adipocytes  
 after 2-24 h, whereas they stimulate basal glucose uptake. These effects  
 do not depend on decreased tyrosine phosphorylation of the insulin  
 receptor and insulin receptor substrate-1 or the interaction of insulin  
 receptor substrate-1 with phosphatidylinositol 3-kinase. They appear to  
 rely on the differential effects of ceramides on the translocation of  
 GLUT1-and GLUT4-containing vesicles. It is concluded that there is a  
 significant interaction and "cross-talk" between the sphingolipid and  
**glycerolipid** pathways that modifies signal transduction to control  
 vesicle movement, cell division, and cell death.